

Statement of Recommendations, Free Space Lasercom
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LGS has been working in the area of Free Space Lasercom, primarily for US Government applications, for more than 20 years. I believe the following areas, which were discussed at the recent NSF workshop, are worthy of consideration for additional work:

1. Application of commercial coherent DSP-based transceivers to high-performance FSO networks.
2. Application of advanced FEC and modulation formats to high-performance FSO networks.
3. Approaches to improved the electrical power efficiency of FSO links. Rather than focusing on only one element (e.g., HPOA efficiency), this should take an integrated view of maximizing what really matters: the received error-free bits/sec for every Watt obtained from onboard solar arrays. This will include choice of modulation format, FEC, electronic processing/control, bus power processing and voltage, HPOA performance, wavelength, aperture efficiency, etc.
4. Technology for high-capacity, short reach underwater-to-underwater and above-the-water-to-underwater links.
5. Continuing work to adapt FSO links to “new space”, low-SWAP platforms, without the lengthy development processes typical of traditional space deployments.